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NOTES ON GEOGRAPHIC DISTRIBUTION

# Squamata, Elapidae, *Micrurus surinamensis* (Cuvier, 1817): New records and distribution map in the state of Mato Grosso, Brazil, with notes on diet and activity period

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**ABSTRACT:** We report six new records of *M. surinamensis* and present the map of distribution with known records for this species of semiaquatic coral snake in the state of Mato Grosso, Brazil.

The semiaquatic coral snake *Micrurus surinamensis* was described by Cuvier in 1817 based on two specimens from Suriname, easily recognized by its relative large and somewhat flattened head covered by red shields outlined by black, and for being the only species of the genus with the fourth supralabial in contact with the eye (Roze 1996). Actually, the distribution encompasses Equatorial forests in South America in the Guiana's region, Venezuela, Colombia, eastern of Ecuador, Peru, Bolivia, and Brasil, where the species occurs in the states of Acre, Amapá, Amazonas, Goiás, Roraima, Rondônia, Pará, Maranhão, Tocantins, and Mato Grosso (Hoge and Lancini 1962; Campbell and Lamar 2004; Passos and Fernandes 2005; Silva Jr. *et al*. 2008).

Reported distribution of *M. surinamensis* to the state of Mato Grosso includes six municipalities: Nova Olímpia (Strussmann and Carvalho 1998), Barra do Garças, Parnaíba (Indianápolis), Pontes e Lacerda, Sinop, and Nova Xavantina (Passos and Fernandes 2005). Passos and Fernandes (2005) also provided two records at Parque Nacional do Xingu (Posto Diauarum and Morena), corresponding to the municipalities of Feliz Nata and Querência, in the Xingu River.

During herpetofaunal surveys in Mato Grosso state, mainly during faunal rescues and monitoring plans for water dams, we recorded nine unpublished localities of occurrence for *M. surinamensis* which are reported therein (Figure 1). Specimens collected and analyzed were housed at the Coleção Zoológica de Vertebrados do Instituto de Biociências da Universidade Federal de Mato Grosso (UFMT) (IBAMA permit number: 059/2008/SUSPES/MT).

Specimens of *M. surinamensis* were collected at the following municipalities: Aripuanã (UFMT 6512, UFMT 1724, UFMT 6647, UFMT 6860, 10°08' S, 59°25' W), Chapada dos Guimarães (UFMT 731, 14°30' S, 55°00' W), Carlinda (UFMT 7379, 10°10'S, 55°35' W), Colniza (UFMT 7170, UFMT 7164, UFMT 7210, UFMT 7799, UFMT 7798, UFMT 5950, 8°54' S, 59°06' W), Juara (UFMT 5950, 10°25' S, 57°38' W), Nova Ubiratã (UFMT 5253, 13°05' S, 60°55' W), Nova Olímpia (UFMT 2117, 14°47'S, 57°17' W), Paranaíta (UFMT 7861, 10°25' S, 57°38' W) and Vale de São Domingos (IBSP 68050, 15°00' S, 58°58' W), erroneously cited as "Pontes e Lacerda" municipality in Passos and Fernandes (2005). Additionally, we registered visually specimens of *M. surinamenses* in three different localities: Cotriguaçu (9°50' S, 58°13' W), Nobres (14°43' S, 56°19' W) and Primavera do Leste (15°14' S, 53°59' W).

An analysis of the geographic distribution of *M. surinamensis* in Mato Grosso shows a widely range of habitats, which encompass two major biomes: the Cerrado and Amazon and several river drainages, such as the Madeira, Tapajós, Xingu and Araguaia Rivers (Figure 2).

The present study provides the second record (Chapada dos Guimarães municipality) and reaffirms the distribution of *M. surinamensis* in the Upper Paraguay River Basin, which was previously reported in Nova Olímpia municipality by Strüssmann and Carvalho (1998).

**FIGURE 1.** An adult female *Micrurus surinamensis* (UFMT 5950) collected at Juara municipality, Mato Grosso state, Brazil.

This study reinforces the lack of knowledge about the herpetofauna from Mato Grosso state (*e.g.* Strüssmann 2000). A special concern should be addressed in this issue because Mato Grosso harbors a high amphibian and reptile diversity along the wide range of habitats provided by the three major existing biomes (Pantanal, Cerrado and Amazon) and have experienced a fast loss of environments due to urban and agricultural expansion.

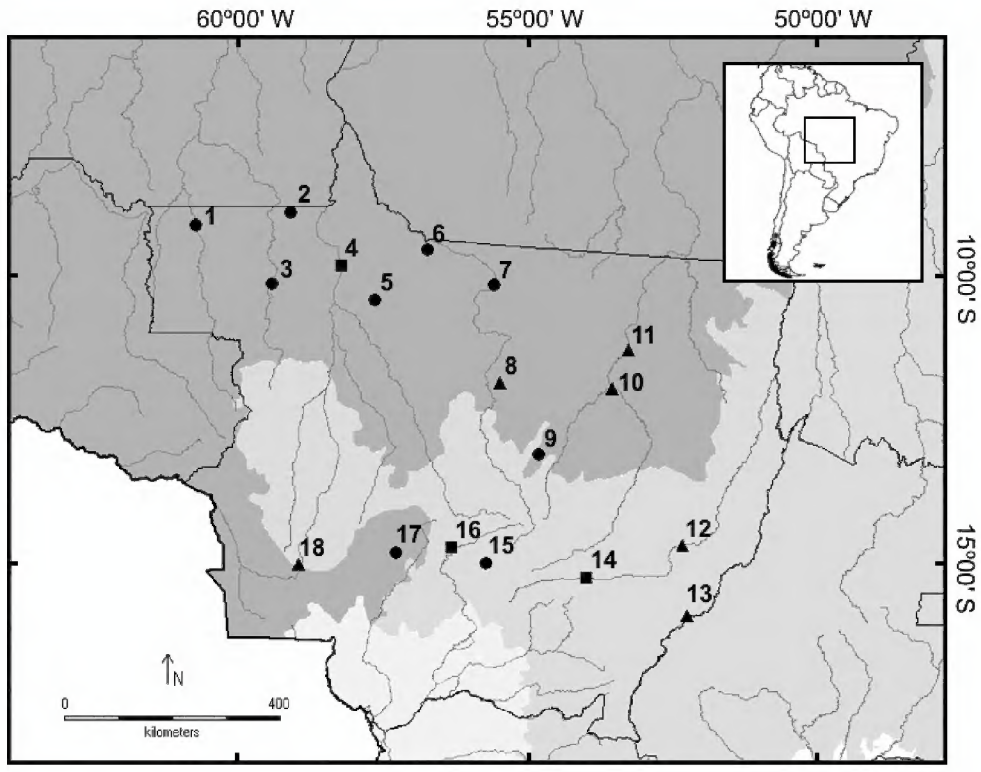


**Figure 2.** Distribution of *Micrurus surinamensis* in the state of Mato Grosso, Brazil. Circles: voucher specimens housed in Coleção Zoológica UFMT. Triangles: literature records. Squares: visual records. Dark Gray: Amazon. Gray: Cerrado. Light gray: Pantanal. Localities: 1) Colniza (Roosevelt River); 2) Colniza (P. E. Igarapés do Juruena); 3) Aripuanã; 4) Cotriguaçu; 5) Juara; 6) Paranaíta; 7) Carlinda; 8) Sinop; 9) Nova Ubiratã; 10) Feliz Natal; 11) Querência; 12) Nova Xavantina; 13) Barra do Garças; 14) Primavera do Leste; 15) Chapada dos Guimarães; 16) Nobres; 17) Nova Olímpia; 18) Vale de São Domingos.

Of the 14 specimens examined, only 14.3% showed prey in their stomachs (UFMT 5950, 7164). Identified preys were the calictiid fish *Callichitis callichitis* (ingested head first) and the gymnotiform fish *Gymnotus* sp. Fishes were already reported as prey for *M. surinamensis* by Cunha and Nascimento (1978). However, these are the first observations of feeding behavior for this species and were similar to those reported for *M. corallinus* (Marques and Sazima 1997).

Additionally, two observations were made by MAC in 1991 from one individual collected at the Rio Feio, Nobres municipality, and kept in the Núcleo de Ofiologia de Mato Grosso (NORMAT) in a 45 x 30 x 30 cm wooden box. After one week of captivity the adult snake (430 mm) were fed with a marbled swamp eel (*Synbranchus marmoratus*) with 140 mm. After 20 minutes the snake slowly approached and seized the fish biting the prey, subsequent releasing the fish after envenomation. The ingestion process initiated after 10 minutes. The second observation occurred after two weeks and the same behavior were registered.

Active individuals (N = 12) of *M. surinamensis* were captured between 16:00h (sunset) and 23:00h, with a peak (25%) at 20:00h (Figure 3). Several authors have been reported the daily activity of coral snakes, which can be diurnal as in *M. corallinus* (Marques and Sazima 1997) and diurnal/nocturnal as in *M. decoratus* (Marques *et al.* 2001) and *M. frontalis* (Sazima and Abe 1991).

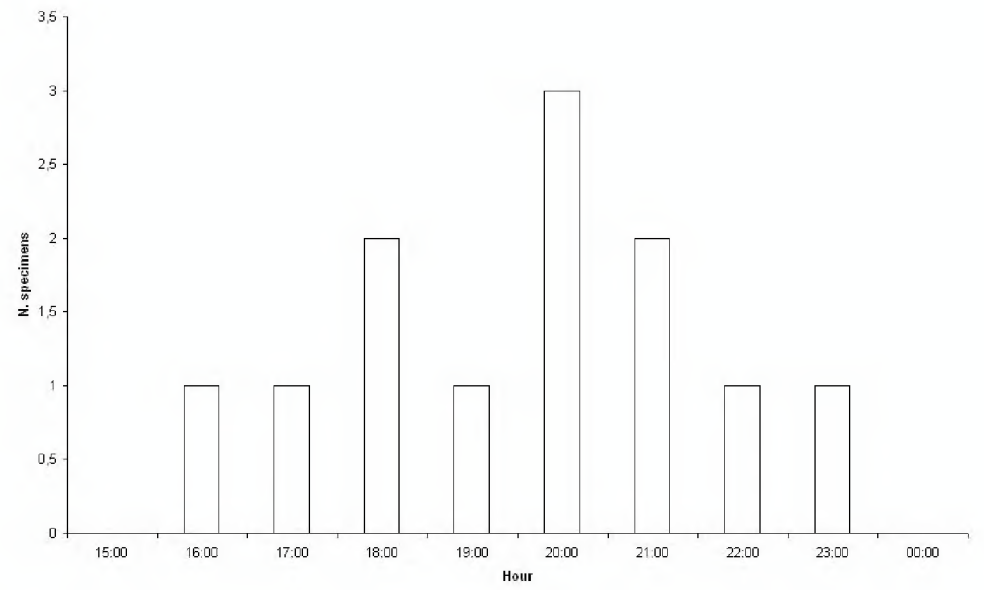


**Figure 3.** Number of active individuals of *Micrurus surinamensis* by hour interval in eight localities at Mato Grosso state, Brazil.

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